

FILE 'CAPLUS' ENTERED AT 12:58:32 ON 03 JUL 2003

| | |
|-----|-------------------------------|
| L1 | 31 S NANOSOL |
| L2 | 27 S NANO SOL |
| L3 | 57 S L1 OR L2 |
| L4 | 89738 S DRUG DELIVERY |
| L5 | 14539 S CHITOSAN |
| L6 | 16869 S AMPHIPHIL? |
| L7 | 140522 S COLLOID? |
| L8 | 256685 S L4 OR L5 OR L6 OR L7 |
| L9 | 10 S L3 AND L8 |
| L10 | 47 S L3 NOT L9 |

L9 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:815104 CAPLUS

DOCUMENT NUMBER: 138:325012

TITLE: Deposition of Titania Nanoparticles on Spherical Silica

AUTHOR(S): Ryu, Dong Hwan; Kim, Seong Chul; Koo, Sang Man; Kim, Dong Pyo

CORPORATE SOURCE: College of Engineering, Ceramic Processing Research Center, Department of Chemical Engineering, Hanyang University, Seoul, 133-791, S. Korea

SOURCE: Journal of Sol-Gel Science and Technology (2003), 26(1/2/3), 489-493

CODEN: JSGTEC; ISSN: 0928-0707

PUBLISHER: Kluwer Academic Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Titania-coated silica nanoparticles were prepd. through a sol-gel process using peptized TiO₂ nano-sols. The TiO₂ sols were obtained by peptization, the process of redispersing a coagulated colloid, and were coated on SiO₂ particles by the control of the wt. ratio of TiO₂/SiO₂ and the pH of the mixt. in aq. soln. At pH 4.5 the difference of zeta-potential between SiO₂ and TiO₂ maximized and then the TiO₂-coated SiO₂ particles with highest TiO₂ contents (.apprx.20%) were obtained without the self-aggregation of TiO₂ sols. The morphologies of particles were characterized with field emission SEM (FE-SEM) and TEM and the isoelec. points (IEP) of particles were measured by zeta potential. The nature of exposed titanium ions on the surface of titania-coated silica nanoparticles was elucidated by XPS.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:388038 CAPLUS

DOCUMENT NUMBER: 137:116835

TITLE: Exfoliation and restacking route to anatase-layered titanate nanohybrid with enhanced photocatalytic activity

AUTHOR(S): Choy, Jin-Ho; Lee, Hyun-Cheol; Jung, Hyun; Kim, Hasuck; Boo, Hankil

CORPORATE SOURCE: National Nanohybrid Materials Laboratory and School of Chemistry and Molecular Engineering, Seoul National University, Seoul, 151-747, S. Korea

SOURCE: Chemistry of Materials (2002), 14(6), 2486-2491

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new microporous TiO₂-pillared layered titanate has been prepd. by hybridizing the exfoliated titanate with the anatase TiO₂ nanosol. The stable colloidal nano-sheet was obtained by intercalating tetrabutylamine into the layered protonic titanate, H_xTi₂-x/4.box.x/404 .times. H₂O (x = 0.67), with a lepidocrocite-like structure. The colloidal suspension of exfoliated titanate sheets was mixed with the monodispersed anatase TiO₂ nanosol soln. prepd. by the hydrolysis of titanium isopropoxide with acetylacetone. The obtained nanohybrid was heated at 300 .degree.C for 2 h in order to complete the grafting reaction of intercalated anatase TiO₂ nanosol on the interlayer surface of layered titanate. According to the x-ray diffraction anal. and N₂ adsorption-desorption isotherms, it was found that the TiO₂-pillared layered titanate showed a pillar height of .apprx.2 nm, a high surface area of .apprx.460 m²/g, and a pore size of .apprx.0.95 nm, indicating the formation of a microporous pillar structure. Its photocatalytic activity was evaluated by measuring the total vol. of H₂ gas evolved during the irradiation of the catalyst suspensions in water. The H₂ gas evolution was found to increase from the layered titanate (cesium and protonic form) to the unsupported TiO₂ (acac-TiO₂) and the TiO₂-pillared layered titanate, because the electron and hole recombination in the pillared system is thought to be effectively suppressed because of electron transfer between guest and host. A marked enhancement in the activity by ca. 40 times was obtained for TiO₂-pillared layered titanate compared to pristine compds. such as layered titanate and anatase TiO₂ nanosol when Pt (0.3 wt %) was doped on the surface of the sample.

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:673142 CAPLUS

DOCUMENT NUMBER: 135:294428

TITLE: Relaxation dynamics of processes in colloidal zirconia nanosols. Dependence on excitation energy and temperature

AUTHOR(S): Emeline, A. V.; Serpone, N.

CORPORATE SOURCE: Department of Chemistry and Biochemistry, Concordia University, Montreal, QC, H3G 1M8, Can.

SOURCE: Chemical Physics Letters (2001), 345(1,2), 105-110
CODEN: CHPLBC; ISSN: 0009-2614

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Process relaxation dynamics occurring in colloidal ZrO₂ nanosols under steady-state and pulsed laser excitation are studied; the temp. dependence of the photoluminescence is also reported. The laser-induced emission emanating from these nanosols is thermally quenched with activation energy $E_{tq} = 0.048 \pm 0.008$ eV, identical to the activation energy ($E_{tq} = 0.050 \pm 0.005$ eV) of thermal quenching of the photoluminescence under steady-state excitation. It is also identical to the energy ($E_{ads} = 0.046 \pm 0.005$ eV) of thermal quenching of the photostimulated adsorption of O on ZrO₂ micron-size particles. A pathway to summarize the events is proposed.

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:614038 CAPLUS

DOCUMENT NUMBER: 135:182238

TITLE: Composite of partially crystalline cellulose and modified silica gel as a carrier

INVENTOR(S): Suess, Wolfgang; Boettcher, Horst; Kallies, Karl-Heinz

PATENT ASSIGNEE(S): Feinchemie G.m.b.H. Sebnitz, Germany

SOURCE: Ger. Offen., 5 pp.
CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------------|------|----------|------------------|----------|
| DE 10006125 | A1 | 20010823 | DE 2000-10006125 | 20000211 |

PRIORITY APPLN. INFO.: DE 2000-10006125 20000211

AB A modified microcryst. cellulose (MC) comprising a composite of partially cryst. cellulose (a cellulose hydrolyzate with d.p. 30-400) and modified silica gel is suitable for use as a carrier for immobilization of colorants, indicators, pharmaceutical agents or biol. active substances in the pharmaceutical, cosmetics and food industries, biotechnol. and genetic engineering, as an auxiliary agent for pharmaceutical and cosmetic formulations, as a stabilizer of suspensions and thermally stable oil-in-water emulsions, as well as for use as a chromatog. support. preferably in column chromatog., a filtering material and an adsorbent. The SiO₂ is modified with RSiO_n, R₂SiO_n, Al₂O₃, ZrO₂ or TiO₂, in which R = H, alkyl, aryl, epoxyalkyl or aminoalkyl and n = 1.5 or 1. The process for manufg. the modified MC comprises (1) impregnation of the suspended MC with the corresponding modified SiO₂ nanosol, which is obtained by alk. or acid hydrolysis of tetraalkoxysilanes, optionally contg. substituted alkoxysilanes or metal alcoholates, (2) optionally addn. of solid or dissolved colorants, indicators, pharmaceutical agents or biol. active substances, (3) gelation by neutralization, addn. of fluoride, warming and evapn. of the solvent, and (4) drying, milling and sieving. Thus, to 9.46 g Al₂(OH)₅Cl.2.5H₂O, dissolved in 86 mL H₂O and 344 mL EtOH, 80.41 g Si(OEt)₄ was added under stirring within 10 min and stirred at room temp. for 24 h. Then, to 192.3 g of the aluminosilicate (.apprx.5.2% SiO₂-Al₂O₃ in 85% EtOH) 6 mL 0.1% NH₄OH soln. was added and 490 g microcryst. cellulose was impregnated, which was dried 30 min at 60.degree.. The composite obtained had a higher breaking strength, compressibility, and flowability than com. modified microcryst. cellulose.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:470578 CAPLUS

DOCUMENT NUMBER: 135:197530

TITLE: Hydroxyapatite nano sol prepared via a mechanochemical route

AUTHOR(S): Nakamura, S.; Isobe, T.; Senna, M.

CORPORATE SOURCE: Faculty of Science and Technology, Keio University, Japan

SOURCE: Journal of Nanoparticle Research (2001), 3(1), 57-61
CODEN: JNARFA; ISSN: 1388-0764

PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Well-dispersed sol with cryst. hydroxyapatite was obtained directly by milling a mixt. comprising Ca(OH)₂, an aq. soln. of H₃PO₄ and a dispersant, an ammonium salt of polyacrylic acid. The av. crystallite size of hydroxyapatite was below 20 nm. Ca/P molar ratio of the product was 1.51 ± 0.04, i.e., Ca deficient from stoichiometric hydroxyapatite. Min. apparent viscosity was attained at a dispersant concn. 0.92 wt.% of sol. An as-milled sol was dild. by a factor 2.61-10 solid wt.% to give a Newtonian fluid of 2 mPa.cntdot.s. From the dild. sol, we obtained a few .mu.m thick dense film of hydroxyapatite by dip coating on the slide glass precoated by chitosan.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:150590 CAPLUS

DOCUMENT NUMBER: 134:183520

TITLE: Pharmaceuticals containing chitosan derivative

INVENTOR(S): Hoffmann, Hans-Rainer; Asmussen, Bodo

PATENT ASSIGNEE(S): Lts Lohmann Therapie-Systeme A.-G., Germany

SOURCE: Ger. Offen., 4 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|------------------|----------|
| DE 19940794 | A1 | 20010301 | DE 1999-19940794 | 19990827 |
| WO 2001015669 | A1 | 20010308 | WO 2000-EP7904 | 20000814 |
| W: AU, BR, CA, CN, CZ, HU, IL, IN, JP, KR, MX, NZ, PL, RU, TR, US, ZA | | | | |
| RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| EP 1206253 | A1 | 20020522 | EP 2000-964016 | 20000814 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY | | | | |
| BR 2000013563 | A | 20020709 | BR 2000-13563 | 20000814 |
| NZ 517541 | A | 20020828 | NZ 2000-517541 | 20000814 |
| JP 2003508423 | T2 | 20030304 | JP 2001-519883 | 20000814 |
| PRIORITY APPLN. INFO.: DE 1999-19940794 A 19990827 | | | | |
| WO 2000-EP7904 W 20000814 | | | | |

AB Solid pharmaceuticals contain a partly loaded drug in nanosol form, in which the drug is bound to a charged chitosan deriv. Procedures for their prodn. and their use in the manuf. of pharmaceuticals are described.

L9 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:329503 CAPLUS

DOCUMENT NUMBER: 131:50050

TITLE: Entrapment of nanostructured palladium clusters in hydrophobic sol-gel materials

AUTHOR(S): Reetz, Manfred T.; Dugal, Markus

CORPORATE SOURCE: Max-Planck-Institut fur Kohlenforschung, Mulheim an der Ruhr, D-45470, Germany

SOURCE: Catalysis Letters (1999), 58(4), 207-212

CODEN: CALEER; ISSN: 1011-372X

PUBLISHER: Baltzer Science Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The fluoride-catalyzed hydrolysis of mixts. of MeSi(OMe)₃ and Mg(OEt)₂ in the presence of preformed nanosized R₄N⁺Br⁻-stabilized Pd colloids gave micro/mesoporous hydrophobic sol-gel materials in which the Pd clusters are entrapped individually in the solid matrix. The materials are active catalysts in the hydrogenation of 1,5-cyclooctadiene.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:335033 CAPLUS

DOCUMENT NUMBER: 129:28901

TITLE: Polysiloxane-mineral fiber composites

INVENTOR(S): Jonschker, Gerhard; Mennig, Martin; Schmidt, Helmut; Angenendt, Rainer

PATENT ASSIGNEE(S): Institut fuer neue Materialien gemeinnuetzige G.m.b.H. Universitaet des Saar, Germany; Pfeleiderer Daemmstofftechnik International G.m.b.H. und Co.

SOURCE: Ger. Offen., 6 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|------------------|----------|
| DE 19647369 | A1 | 19980520 | DE 1996-19647369 | 19961115 |
| EP 842967 | A2 | 19980520 | EP 1997-120034 | 19971114 |
| EP 842967 | A3 | 19980617 | | |
| EP 842967 | B1 | 20000920 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| WO 9821266 | A1 | 19980522 | WO 1997-EP6371 | 19971114 |
| W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG | | | | |
| AU 9856533 | A1 | 19980603 | AU 1998-56533 | 19971114 |
| AU 736612 | B2 | 20010802 | | |
| BR 9712766 | A | 19991026 | BR 1997-12766 | 19971114 |
| CN 1237187 | A | 19991201 | CN 1997-199644 | 19971114 |
| AT 196488 | E | 20001015 | AT 1997-120034 | 19971114 |
| NZ 335095 | A | 20001124 | NZ 1997-335095 | 19971114 |
| ES 2150731 | T3 | 20001201 | ES 1997-120034 | 19971114 |
| JP 2001504403 | T2 | 20010403 | JP 1998-522192 | 19971114 |
| RU 2188763 | C2 | 20020910 | RU 1999-112565 | 19971114 |
| KR 2000052733 | A | 20000825 | KR 1999-703533 | 19990422 |
| MX 9904099 | A | 20001130 | MX 1999-4099 | 19990430 |
| US 6187426 | B1 | 20010213 | US 1999-297574 | 19990503 |

PRIORITY APPLN. INFO.: DE 1996-19647369 A 19961115
 WO 1997-EP6371 W 19971114

AB The title composites comprise glass, mineral, or woody fibers in functional contact with nanocomposites prep. by modifying the surface of colloidal, inorg. particles with silanes of specified structure under the conditions of the sol-gel process to form nanosols. Stirring a 65:15:20 MeSi(OEt)3-PhSi(OEt)3-Si(OEt)4 mixt. with a SiO2 sol and HCl formed a 14% polysiloxane nanosol which, after .apprx.12 h, was dild. to 0.5 mol H2O/alkoxy group, sprayed on moistened glass wool, and cured at 200.degree. for 5-10 min to give an elastic composite with better fire resistance than a phenolic resin-glass composite.

L9 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:335032 CAPLUS
 DOCUMENT NUMBER: 129:28900
 TITLE: Polysiloxane nanocomposites
 INVENTOR(S): Jonschker, Gerhard; Mennig, Martin; Schmidt, Helmut
 PATENT ASSIGNEE(S): Institut fuer neue Materialien gemeinnuetzige G.m.b.H. Universitaet des Saar, Germany

SOURCE: Ger. Offen., 7 pp.
 CODEN: GWXXBX

DOCUMENT TYPE: Patent
 LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|------------------|----------|
| DE 19647368 | A1 | 19980520 | DE 1996-19647368 | 19961115 |
| WO 9822648 | A2 | 19980528 | WO 1997-EP6370 | 19971114 |
| WO 9822648 | A3 | 19980813 | | |
| W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG | | | | |
| WO 9822536 | A2 | 19980528 | WO 1997-EP6372 | 19971114 |
| WO 9822536 | A3 | 19980730 | | |
| W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, | | | | |

PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG,
 US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR,
 GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA,
 GN, ML, MR, NE, SN, TD, TG

WO 9822241 A2 19980528 WO 1997-EP6373 19971114
 WO 9822241 A3 19980730

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,
 DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR,
 KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,
 PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG,
 US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR,
 GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA,
 GN, ML, MR, NE, SN, TD, TG

AU 9854825 A1 19980610 AU 1998-54825 19971114
 AU 9855524 A1 19980610 AU 1998-55524 19971114
 AU 9855525 A1 19980610 AU 1998-55525 19971114
 EP 938405 A2 19990901 EP 1997-951206 19971114
 EP 938405 B1 20010214

R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE, PT, IE, FI
 EP 946313 A2 19991006 EP 1997-951902 19971114
 EP 946313 B1 20010404

R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE, PT, IE, FI
 EP 950039 A2 19991020 EP 1997-951901 19971114

R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE, PT, IE, FI
 CN 1236339 A 19991124 CN 1997-199506 19971114
 BR 9712956 A 19991207 BR 1997-12956 19971114
 BR 9713084 A 20000328 BR 1997-13084 19971114
 AT 199132 E 20010215 AT 1997-951206 19971114
 ES 2154063 T3 20010316 ES 1997-951206 19971114
 AT 200235 E 20010415 AT 1997-951902 19971114
 ES 2155707 T3 20010516 ES 1997-951902 19971114
 JP 2001507084 T2 20010529 JP 1998-523187 19971114
 JP 2001507085 T2 20010529 JP 1998-523188 19971114
 JP 2001508361 T2 20010626 JP 1998-523189 19971114
 US 6287639 B1 20010911 US 1999-297571 19990503
 US 6352610 B1 20020305 US 1999-297573 19990503
 US 6378599 B1 20020430 US 1999-297572 19990503

PRIORITY APPLN. INFO.:

DE 1996-19647368 A 19961115
 WO 1997-EP6370 W 19971114
 WO 1997-EP6372 W 19971114
 WO 1997-EP6373 W 19971114

AB Composites are prep. by hydrolyzing silanes of specified structure in the presence of colloidal inorg. particles under the conditions of the sol-gel process to form nanosols which, after further hydrolysis-condensation, are cured in contact with substrates. Stirring a 60:20:20 MeSi(OEt)3-Si(OEt)4-PhSi(OEt)3 mixt. strongly with a SiO2 sol and HCl gave a sol which, after 12 h at 60.degree., was dild. with H2O to 0.5 mol H2O/alkoxy group and mixed with sand (particle size apprx.1 mm) to give a sand content of 84% and cured at 100.degree. for 20 min to give a mech. stable composite which did not lose its shape after 1 h at 500.degree..

L9 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:456207 CAPLUS

DOCUMENT NUMBER: 119:56207

TITLE: Nanosol drug formulation

INVENTOR(S): Wunderlich, Jens Christian; Schick, Ursula; Werry,

Juergen; Freidenreich, Juergen

PATENT ASSIGNEE(S): Alfatec-Pharma GmbH, Germany

SOURCE: PCT Int. Appl., 72 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 6

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| WO 9310768 | A1 | 19930610 | WO 1992-DE1010 | 19921204 |
| W: AU, CA, JP, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| DE 4140177 | A1 | 19930609 | DE 1991-4140177 | 19911205 |
| DE 4140177 | C2 | 19951221 | | |
| DE 4140178 | A1 | 19930609 | DE 1991-4140178 | 19911205 |
| DE 4140178 | C2 | 19980219 | | |
| DE 4140195 | A1 | 19930617 | DE 1991-4140195 | 19911205 |
| DE 4140195 | C2 | 19941027 | | |
| AU 9230802 | A1 | 19930628 | AU 1992-30802 | 19921204 |

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|---|----|----------|----------------|----------|
| AU 671965 | B2 | 19960919 | | |
| EP 615445 | A1 | 19940921 | EP 1992-924547 | 19921204 |
| EP 615445 | B1 | 19960515 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, SE | | | | |
| US 5932245 | A | 19990803 | US 1994-244615 | 19941025 |

PRIORITY APPLN. INFO.:

| | | |
|-----------------|---|----------|
| DE 1991-4140177 | A | 19911205 |
| DE 1991-4140178 | A | 19911205 |
| DE 1991-4140195 | A | 19911205 |
| WO 1992-DE1010 | A | 19921204 |

AB Colloidally-dispersed solns. of drugs with low soly. in water (nanosols) are prepd. by isoionic stabilization of the drug particles with gelatin, gelatin derivs. or collagen hydrolyzates of opposite charge. The nanosols show little Ostwald maturation and provide rapid drug absorption and high bioavailability. An ibuprofen nanosol was prepd. using a gelatin B (isoelec. point 4.9) which has a pos. net charge at pH 3. A 3% aq. gelatin B soln. (500 g) was adjusted to pH 3 and treated with 250 mL EtOH and 10 g ibuprofen. EtOH evapn. led to a nanosol, which was spray-dried.

L10 ANSWER 1 OF 47 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 2003:472121 CAPLUS
 TITLE: Nonlinear optical absorption in silver nanosol
 AUTHOR(S): Unnikrishnan, K. P.; Nampoori, V. P. N.; Ramakrishnan, V.; Umadevi, M.; Vallabhan, C. P. G.
 CORPORATE SOURCE: International School of Photonics, Cochin University of Science and Technology, Cochin, 682022, India
 SOURCE: Journal of Physics D: Applied Physics (2003), 36(11), 1242-1245
 CODEN: JPAPBE; ISSN: 0022-3727
 PUBLISHER: Institute of Physics Publishing
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Nonlinear optical absorption in silver nanosol was investigated at selected wavelengths (456 nm, 477 nm and 532 nm) using open aperture Z-scan technique. It was obsd. that nature of nonlinear absorption is sensitively dependent on input fluence as well as on excitation wavelength. Besides, the present sample was found to exhibit reverse saturable absorption (RSA) and saturable absorption (SA) at these wavelengths depending on excitation fluence. RSA is attributed to enhanced absorption resulting from photochem. changes. SA obsd. for fluence values lower and higher than those corresponding to RSA are, resp., attributed to plasmon bleach and satn. of RSA.

L10 ANSWER 2 OF 47 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 2003:427272 CAPLUS
 TITLE: Efficient transdermal penetration and improved stability of L-ascorbic acid encapsulated in an inorganic nanocapsule
 AUTHOR(S): Yang, Jae-Hun; Lee, Sun-Young; Han, Yang-Su; Park, Kyoung-Chan; Choy, Jin-Ho
 CORPORATE SOURCE: National Nanohybrid Materials Laboratory, School of Chemistry & Molecular Engineering, Seoul National University, Seoul, 151-747, S. Korea
 SOURCE: Bulletin of the Korean Chemical Society (2003), 24(4), 499-503
 CODEN: BKCSDE; ISSN: 0253-2964
 PUBLISHER: Korean Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Encapsulation of L-ascorbic acid (vitamin C) within a bio-compatible layered inorg. material was achieved by copptn. reaction, in which the layered inorg. lattice and its intercalate of vitamin C are simultaneously formed. The nano-meter sized powders of vitamin C intercalate thus prepd. was again encapsulated with silica nano-sol to form a nanoporous shell structure. This ternary nanohybrid of vitamin C-layered inorg. core-SiO2 shell exhibited an enhanced storage stability and a sustained releasing of vitamin C. Furthermore, the nano-encapsulation of vitamin C with inorg. mineral was very helpful in delivering vitamin C mols. into skin through stratum corneum, facilitating transdermal penetration of vitamin C in topical application.
 REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 3 OF 47 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 2003:355803 CAPLUS
 DOCUMENT NUMBER: 138:342352
 TITLE: Sol-gel preparation of low phonon energy silicate glass-ceramic gain medium with SnO2 nanoclusters for lasers and optical amplifiers
 INVENTOR(S): Taylor, Elizabeth; Brambilla, Gilberto; Chiodini, Norberto; Paleari, Alberto; Spinolo, Giorgio; Morazzoni, Franca; Scotti, Roberto
 PATENT ASSIGNEE(S): UK
 SOURCE: U.S. Pat. Appl. Publ., 13 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|------------|
| US 2003087742 | A1 | 20030508 | US 2002-260414 | 20021001 |
| PRIORITY APPLN. INFO.: | | | | |
| | | | EP 2001-308392 | A 20011002 |
| | | | US 2001-327768P | P 20011010 |

AB Optical gain medium are fabricated by sol-gel process and include a glass ceramic host material contg. clusters of cryst. oxide material (such as SnO2) and doped with active ions (such as rare earth, erbium or thulium)

concd. at the clusters. The active ions are preferentially located at the nanoclusters so that they experience the relatively low phonon energy of the oxide and are insensitive to the phonon energy of the host. A host with a high phonon energy, such as silica, can therefore be used without the usual drawback of reduced carrier lifetimes through enhanced nonradiative decay rates.

L10 ANSWER 4 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:317353 CAPLUS
DOCUMENT NUMBER: 138:325943
TITLE: Bio-composite for the removal of heavy metals from aqueous solutions
INVENTOR(S): Kallies, Karl-Heinz; Selenska-Pobell, Sonja; Raff, Johannes; Soltmann, Ulrich; Boettcher, Horst; Quast, Heiner
PATENT ASSIGNEE(S): Kallies Feinchemie AG, Germany; Forschungszentrum Rossendorf E.V.
SOURCE: Ger. Offen., 6 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|------------------|----------|
| DE 10146375 | A1 | 20030424 | DE 2001-10146375 | 20010920 |
| PRIORITY APPLN. INFO.: | | | DE 2001-10146375 | 20010920 |

AB A bio-composite material for the biosorption of heavy metals from aq. solns. consists of drying-stable cell products which are homogeneously dispersed in an inorg. gel. The inorg. gel can contain oxides of group IIA-VA and IIB-VB elements. The inorg. gel is a SiO₂ nanosol prep'd. by hydrolysis of tetraalkoxysilanes and can be modified by Co-hydrolysis with metal alcoholates or halides, tri- or dialkoxysilanes. The cell product, such as spores, cell wall proteins or killed cells, are mixed with the aq. nanosol. A gel is formed by layer formation, neutralization, heating and/or fluoride addn. The gel is freeze-dried or air-dried.

L10 ANSWER 5 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:208013 CAPLUS
TITLE: Studies on nano-particle sols of hydroxyapatite and titanium dioxide for haemo-compatibility
AUTHOR(S): Chen, Xiao; Feng, Lingyun; Peng, Renxiu; Cao, Xianying; Li, Shipu
CORPORATE SOURCE: Department of Pharmacology, Medical School of Wuhan University, Wuhan, 430071, Peop. Rep. China
SOURCE: Weisheng Yanjiu (2002), 31(3), 197-199
CODEN: WEYAEM; ISSN: 1000-8020
PUBLISHER: Weisheng Yanjiu Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB A biol. evaluation was conducted for two types of nano-particle sols, hydroxyapatite(HAP) and titanium dioxide(TiO₂). The results showed that HAP sol significantly prolonged the bleeding time and coagulation time of mice as well as the prothrombin time(PT) and partial thromboplastin time(PTT) of rats while TiO₂ sol exhibited no such effects. Neither HAP sol nor TiO₂ sol instigated in vitro hemolysis of rabbit erythrocyte. However, both of the materials caused in vitro aggregation of rabbit erythrocytes. The reason underlying the different results as to the two types of material was their specific stablizer, heparin for HAP sol and PVC for TiO₂ sol. A biol. inert stablizer has no less significance than the nano-particle's very own nature in a name material's application prospect.

L10 ANSWER 6 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:205181 CAPLUS
TITLE: Al₂O₃-Y-TZP/Al₂O₃ functionally graded composites of tubular shape from nano-sols using double-step electrophoretic deposition
AUTHOR(S): Kaya, Cengiz
CORPORATE SOURCE: Interdisciplinary Research Centre (IRC) in Materials Processing and School of Metallurgy and Materials, The University of Birmingham, Edgbaston, Birmingham, B15 2TT
SOURCE: Journal of the European Ceramic Society (2003), 23(10), 1655-1660
CODEN: JECSEJ; ISSN: 0955-2219
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal

LANGUAGE: English

AB Al2O3-Y-TZP/Al2O3 functionally graded composites of tubular shape incorporating a very tough central layer with graded compn. (Al2O3-Y-TZP) and a hard outer surface layer of pure alumina were produced from nano-size sols using electrophoretic deposition (EPD) in an attempt to generate a continuously inhomogeneous property variation across the final component and to control the microstructure at a nanometer scale. It is shown that hardness, fracture toughness and alumina grain size within the graded layer are controlled by the vol. fraction of TZP grains and the highest vol. fraction (71%) of TZP phase provides a fracture toughness value of 7.1 MPa m^{1/2} and Vicker's hardness of 10.4 GPa while the lowest vol. fraction (13%) results in obtaining a fracture toughness value of 3.8 MPa m^{1/2} and hardness value of 15.7 GPa. The pure alumina surface layer (100 .mu.m in thickness) with a high hardness value of 19.4 GPa is considered to be beneficial for tribol. applications where high wear resistance is required.

L10 ANSWER 7 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:132147 CAPLUS

TITLE: Structural evolution of SiO2-ZrO2 nano-sol intercalated clays upon pillaring reaction
AUTHOR(S): Choy, Jin-Ho; Yoon, Joo-Byoung; Jung, Hyun; Park, Joo-Hyoung

CORPORATE SOURCE: National Nanohybrid Materials Laboratory, School of Chemistry & Molecular Engineering, Seoul National University, Seoul, 151-747, S. Korea

SOURCE: Journal of Materials Chemistry (2003), 13(3), 557-562
CODEN: JMACEP; ISSN: 0959-9428

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A two-dimensional layered nanohybrid with a high sp. surface area has been prepd. by ion exchange reactions between the sodium ions in montmorillonite and the pos. charged Zr-coated SiO2 sol particles. The basal spacing increases from 12.5 .ANG. to 26 .ANG. upon intercalation due to the insertion of a SiO2-ZrO2 nano-sol into the interlayer space of montmorillonite. Upon calcining at 300 .degree.C, it transforms into a porous nanohybrid with a basal spacing of 22.6 .ANG.. The N2 adsorption-desorption isotherms were characterized as being of type IV according to the BDDT classification, indicating the existence of a large no. of micro- and mesopores. From its hysteresis curves, one can classify the nanohybrid as being of the H3 type with slit-shaped pores by the IUPAC classification. The estd. BET sp. surface area and av. micropore size are about 358 m2 g-1 and 12 .ANG., resp., with the latter value is similar to the gallery height of the sample indicating that the SiO2-ZrO2 sol particles are intercalated to form a monolayer. The local structural evolution of the Zr species in SiO2-ZrO2 sol particle has been investigated systematically by X-ray absorption spectroscopy at the Zr K-edge with respect to the calcination temp. The EXAFS spectroscopic results confirm that the surface of the nano-sized SiO2 sol particles is coated with the Zr species.

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 8 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:922173 CAPLUS

DOCUMENT NUMBER: 138:126339

TITLE: Biosorption of uranium and copper by biocers

AUTHOR(S): Raff, J.; Soltmann, U.; Matys, S.; Selenska-Pobell, S.; Boettcher, H.; Pompe, W.

CORPORATE SOURCE: Institute of Radiochemistry, Research Center Rossendorf, Dresden, D-01314, Germany

SOURCE: Chemistry of Materials (2003), 15(1), 240-244
CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Biol. ceramic composites (biocers) made according to an aq. sol-gel protocol were used as selective metal binding filters. The biol. component of the biocers, Bacillus sphaericus JG-A12, was isolated from a uranium mining waste pile. Vegetative cells and spores of this strain are known to selectively bind U, Cu, Al, Cd, and Pb in large amts. Sol-gel ceramics were prepd. by dispersing vegetative cells, spores, and stabilized surface-layer proteins (S-layer) in aq. silica nanosols, gelling, and drying. The biosorption of uranium and copper by the three kinds of biocers and by their single components was investigated with regard to dependence on time, concn., and prepn. conditions. Biocers with cells possess the highest binding capacity as compared to matrixes with spores and an S-layer. Freeze-drying of prepd. biocers or adding water-sol. compds. such as sorbitol lead to higher porosity and faster

metal binding. Uranium was bound mainly to the biol. component but also to the SiO₂ network. Copper was only bound by the cells, spores, or S-layer. Bound uranium and copper were completely removed by washing with aq. citric acid.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 9 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:815241 CAPLUS
DOCUMENT NUMBER: 138:357724
TITLE: Biosorption of heavy metals by sol-gel immobilized Bacillus sphaericus cells, spores and S-layers
AUTHOR(S): Soltmann, U.; Raff, J.; Selenska-Pobell, S.; Matys, S.; Pompe, W.; Boettcher, H.
CORPORATE SOURCE: Forschungszentrum Rossendorf, Institut fuer Radiochemie, Dresden, D-01314, Germany
SOURCE: Journal of Sol-Gel Science and Technology (2003), 26(1/2/3), 1209-1212
CODEN: JSGTEC; ISSN: 0928-0707
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Different types of biocers were prepd. by dispersing vegetative cells, spores and surface layer proteins (S-layers) of Bacillus sphaericus JG-A12 in aq. silica nanosols, gelling or depositing on glass, and drying. The enzymic activity of embedded B. sphaericus cells depends noticeably on the water content of the biocer. The cells are destroyed by drying and shrinkage of the silica network, whereas embedded spores retain their ability for germination. The biosorption of uranium and copper on these biocomposites was investigated. Biocers with cells possess the highest metal binding capacity compared to matrixes with spores or S-layers. An addnl. increment of the metal binding capacity is achieved by using penetration reagents like sorbitol. For renewed use biosorbed uranium and copper can be completely removed from the biocers by using aq. citric acid. The use of spores as biocomponent offers possibilities for the prepn. of storage-stable bioactive biocers.

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 10 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:675475 CAPLUS
DOCUMENT NUMBER: 137:359955
TITLE: Sol-Gel Derived Gold Nanoclusters in Silica Glass Possessing Large Optical Nonlinearities
AUTHOR(S): Selvan, S. Tamil; Hayakawa, Tomokatsu; Nogami, Masayuki; Kobayashi, Yoshio; Liz-Marzan, Luis M.; Hamanaka, Yasushi; Nakamura, Arao
CORPORATE SOURCE: Department of Materials Science Engineering, Nagoya Institute of Technology, Gokiso-cho, Showa-ku, Nagoya, 466-855, Japan
SOURCE: Journal of Physical Chemistry B (2002), 106(39), 10157-10162
CODEN: JPCBFK; ISSN: 1520-6106
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Sol-gel derived Au/SiO₂ glasses, starting with Au sols prepd. by 2 different methodologies, 1 without the aid of any external stabilizing agent and the other with SiO₂-coated Au, are described. The optical absorption spectra show the typical surface plasmon resonance for Au at .apprx.520-530 nm. TEM reveals the existence of spherical Au particles in the SiO₂ matrix. The mean diams. of Au nanoclusters in gels and glasses vary from 10 to 20 nm and from 27 to 38 nm, resp., supported by x-ray diffraction data. The 3rd-order optical nonlinearities |.chi.(3)| detd. by a degenerate 4-wave mixing (DFWM) method exhibit a higher value of 2.2 .times. 10⁻⁹ esu for a glass with 0.5% Au heated at 600.degree. indicating that a larger size induces an enhancement effect. This method also offers a greater .chi.(3)/.alpha. (.alpha.: absorption coeff.) value of 1 .times. 10⁻¹¹ esu cm, which is comparable to those values obtained by a sputtering method. Thus, these novel Au-SiO₂ nanocomposites fabricated by facile sol-gel methods render them potential candidates for photonic applications.

REFERENCE COUNT: 54 THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 11 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:465198 CAPLUS
DOCUMENT NUMBER: 137:385924
TITLE: Refining of textiles by nanosol coating
AUTHOR(S): Mahltig, B.; Bottcher, H.

CORPORATE SOURCE: Gesellschaft zur Forderung von Medizin-, Bio- und Umwelttechnologien e.V., GMBU, Dresden, Germany
 SOURCE: Melliand Textilberichte (2002), 83(4), E50-E51, 251-253
 CODEN: MTIRDL; ISSN: 0341-0781
 PUBLISHER: Melliand Textilberichte
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The sol-gel technique is a new versatile tool to create transparent and well adhesive metal or silicon oxide films on various textiles. To synthesize such coatings on textiles, silica contg. nanosol suspensions were used to impregnate the textile materials. After impregnation a drying process converts the applied nanosol into a thin and transparent gel film. The chem. and phys. modification of such coatings allows a wide range in the variation of surface properties of textiles.
 REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 12 OF 47 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 2002:366930 CAPLUS
 DOCUMENT NUMBER: 136:352322
 TITLE: Biocomposite material containing inorganic gel and live cells
 INVENTOR(S): Boettcher, D. Horst; Sawusch, Stefan; Kallies, Karl-Heinz; Pompe, Wolfgang
 PATENT ASSIGNEE(S): Feinchemie Gmbh Sebnitz, Germany
 SOURCE: Ger. Offen., 8 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|------------------|----------|
| DE 10054119 | A1 | 20020516 | DE 2000-10054119 | 20001031 |
| PRIORITY APPLN. INFO.: DE 2000-10054119 20001031 | | | | |
| AB The invention concerns a biocomposite material and its prepn. from an inorg. gel and live cells, e.g. microorganisms; the biocomposite materials are used as biocatalysts. Culture medium, activators, e.g. org. acids can be included. Thus an aq. silica nanosol was prepd. from a tetrahydroxysilane ethanolic soln. with 0.01 M hydrochloric acid, neutralized with ammonia and dried. Saccharomyces cerevisiae was dispersed in 1% Tween 80 - contg. water and the nanosol gel was added. Series compns. were prepd. with activator combinations, e.g. org. acid and EDTA, org. ammonium salt and tetra-Bu ammonium chloride, water-sol. org. compd. and sorbit. The fermentative properties of the biocatalyst products were tested with glucose; the activator-contg. products showed increased activity. | | | | |
| REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT | | | | |

L10 ANSWER 13 OF 47 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 2002:298333 CAPLUS
 DOCUMENT NUMBER: 137:85821
 TITLE: A new nanohybrid photocatalyst between anatase (TiO2) and layered titanate
 AUTHOR(S): Lee, Hyun-Cheol; Jung, Hyun; Oh, Jae-Min; Choy, Jin-Ho
 CORPORATE SOURCE: National Nanohybrid Materials Laboratory, School of Chemistry and Molecular Engineering, Seoul National University, Seoul, 151-747, S. Korea
 SOURCE: Bulletin of the Korean Chemical Society (2002), 23(3), 477-480
 CODEN: BKCSDE; ISSN: 0253-2964
 PUBLISHER: Korean Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB A new microporous TiO2-pillared layered titanate has been successfully prepd. by hybridizing the exfoliated titanate with the anatase TiO2 nano-sol. According to the x-ray diffraction anal. and N2 adsorption-desorption isotherms, the TiO2-pillared layered titanate showed a pillar height of .apprx.2 nm with a high surface area of .apprx.460 m2/g and a pore size of .apprx.0.95 nm, indicating that a microporous pillar structure is formed. Its photocatalytic activity was evaluated by measuring the photodegrdn. rate of 4-chlorophenol during irradiation of catalyst suspensions in an aq. soln. An enhancement in activity of ca. 170% was obtained for TiO2-pillared layered titanate compared to that of the pristine compd. such as layered cesium titanate.
 REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 14 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:839467 CAPLUS
DOCUMENT NUMBER: 136:38857
TITLE: Functional coatings on basis of inorganic
nanosols
AUTHOR(S): Bottcher, H.
CORPORATE SOURCE: Feinchemie GmbH Sebnitz, Sebnitz, D-01855, Germany
SOURCE: Materialwissenschaft und Werkstofftechnik (2001),
32(10), 759-766
CODEN: MATWER; ISSN: 0933-5137
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal; General Review
LANGUAGE: German

AB A review. The controlled hydrolysis of silicon or metal alkoxides produces nanoparticulate oxide sols which condense to thin transparent gel films on any substrates after coating and drying (so-called sol-gel process). The co-hydrolysis and co-condensation of different alkoxides (chem. modification) as well as the embedding of different additives (phys. modification) offers almost unlimited possibilities to vary the properties of nanosols and, therefore, also of the resulting coatings, and to adapt them to the purpose intended. By coating of flexible substrates like textiles, papers, or polymer foils it is possible to combine the material protecting functions of the inorg. oxide layer with new functional qualities, e.g. modification of surface energy and charge, alteration of the optical properties, realization of biocompatible and bioactive properties.

REFERENCE COUNT: 66 THERE ARE 66 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 15 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:765446 CAPLUS
DOCUMENT NUMBER: 136:106399
TITLE: Sol-gel processed TiO₂-based nano-sized powders for use in thick-film gas sensors for atmospheric pollutant monitoring
AUTHOR(S): Traversa, Enrico; Di Vona, Maria Luisa; Licocchia, Silvia; Sacerdoti, Michele; Carotta, Maria Cristina; Crema, Luigi; Martinelli, Giuliano
CORPORATE SOURCE: Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali (INSTM) and Dipartimento di Scienze e Tecnologie Chimiche, Universita di Roma "Tor Vergata", Rome, 00133, Italy
SOURCE: Journal of Sol-Gel Science and Technology (2001),
22(1/2), 167-179
CODEN: JSGTEC; ISSN: 0928-0707
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Sol-gel routes were used to prep. pure and 5 at.% and 10 at.% Ta- or Nb-dope TiO₂ nano-sized powders. The thermal decompn. behavior of the precursors was studied using simultaneous thermogravimetric and DTA (TG/DTA). XRD anal. showed that the powders heated to 400.degree. were cryst. in the anatase TiO₂ structure. The pure TiO₂ powder heated to 850.degree. showed the rutile structure. The addn. of Ta and Nb inhibited the anatase-to-rutile phase transformation up to 950-1050.degree.. Ta was sol. in the titania lattice up to the concn. of 10 at.%, while the soly. of Nb was 5 at.%. Thick films were fabricated with these powders by screen printing technol. and then fired for 1 h at different temps. in the 650-1050.degree. range. SEM observations showed that the anatase-to-rutile phase transformation induces a grain growth of about one order of magnitude for pure TiO₂. The addn. of Ta and Nb is effective to keep the TiO₂ grain size at a nanometric level even at 950.degree., though grain growth was obsd. with increasing temp. The gas-sensitive elec. response of the thick films were tested in lab., in environments with CO in dry and wet air. Conductance measurements showed a good gas response only for the nanostructured titania-based films. For field tests, the prototype sensors were placed beside a conventional station for atm. pollutant monitoring. The elec. response of the thick films was compared with the results of the anal. instruments. The same trend was obsd. for both systems, demonstrating the use of gas sensors for this aim.

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 16 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:750858 CAPLUS
DOCUMENT NUMBER: 136:9697
TITLE: A new way to prepare nano scale complicated oxide ceramics using an amorphous heteronuclear complex

AUTHOR(S): Zhu, Y. F.; Yi, T.; Gao, S.; Yan, C. H.; Cao, L. L.
 CORPORATE SOURCE: Department of Chemistry, Tsinghua University, Beijing, 100084, Peop. Rep. China
 SOURCE: Proceedings of the China International Conference on High-Performance Ceramics, 1st, Beijing, China, Oct. 31-Nov. 3, 1998 (1999), Meeting Date 1998, 162-165. Editor(s): Yan, Dongsheng; Guan, Zhenduo. Tsinghua University Press: Beijing, Peop. Rep. China. CODEN: 69BWTP

DOCUMENT TYPE: Conference
 LANGUAGE: English

AB A new way to prep. nano scale complicated oxide materials using amorphous heteronuclear complex as a precursor has been carried out in this paper. Gd₂CuO₄ cuprate oxide was prepd. using this way. The precursor was Gd₂Cu(DTPA)1.6.6H₂O amorphous complex: DTA and TGA indicated that the precursor can be decompd. into oxide below 500.degree.. XPS indicated that the Gd₂CuO₄ cuprate oxide were formed after the precursor was calcined at 500.degree. for 2 h. XRD also proved the cryst. phase of Gd₂CuO₄ cuprate can be obtained when the calcination temp. increased to 650.degree.. The cryst. size of Gd₂CuO₄ increased linearly from 20 nm to 50 nm when the calcination temp. increases from 500.degree. to 800.degree. for 2 h, and the size increases from 10 nm to 30 nm when the calcination time increased from 1 to 8 h at 500.degree..

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 17 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:394284 CAPLUS
 DOCUMENT NUMBER: 135:6781
 TITLE: Sol-gel coating on textiles
 AUTHOR(S): Bottcher, H.
 CORPORATE SOURCE: Feinchemie GmbH Sebnitz, Sebnitz, D-01855, Germany
 SOURCE: Textilveredlung (2001), 36(3/4), 16, 19-21
 CODEN: TXLVAE; ISSN: 0040-5310
 PUBLISHER: Verlag Textilveredlung AG
 DOCUMENT TYPE: Journal; General Review
 LANGUAGE: German

AB A review without refs. (list of refs. can be ordered or downloaded) is given on prepn. and modification of SiO₂-based nano-sols and their use for functionalization of textiles: modification of surface and optical properties as well as immobilization and controlled release of bioactive substances (biocides, fragrances).

L10 ANSWER 18 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:320025 CAPLUS
 DOCUMENT NUMBER: 134:327989
 TITLE: Abrasion-resistant coatings as diffusion barriers
 INVENTOR(S): Mennig, Martin; Oliveira, Peter W.; Schmidt, Helmut
 PATENT ASSIGNEE(S): Institut Fuer Neue Materialien Gem. G.m.b.H., Germany
 SOURCE: PCT Int. Appl., 29 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|----------|
| WO 2001030922 | A2 | 20010503 | WO 2000-EP10589 | 20001027 |
| WO 2001030922 | A3 | 20020110 | | |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| BR 2000015027 | A | 20020716 | BR 2000-15027 | 20001027 |
| EP 1230040 | A2 | 20020814 | EP 2000-972876 | 20001027 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL | | | | |
| JP 2003512921 | T2 | 20030408 | JP 2001-533909 | 20001027 |
| PRIORITY APPLN. INFO.: DE 1999-19952040 A 19991028 | | | | |
| WO 2000-EP10589 W 20001027 | | | | |

AB The title coatings, with high strength in thin layers, comprise base layers of polymers which can be cured thermally or photochem. and outer layers of compns. contg. nanoscale sols or solid particles which are applied on the base layer while the latter is still reactive.

Polycarbonate plates were spin-coated with a 2% iso-PrOH soln. of (EtO)3Si(CH2)3NH2, cured at 130.degree. in dry air, spin-coated with a hydrolyzable epoxysilane, cured at 80.degree. in dry air, spin-coated with a nanosol, and cured at 130.degree. to give a coating with thickness 200-300 nm, good adhesion and abrasion resistance, and moisture diffusion rate .ltoreq.20% lower than that of an uncoated substrate.

L10 ANSWER 19 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:162775 CAPLUS

DOCUMENT NUMBER: 134:213239

TITLE: In situ XAFS study at the Zr K-edge for SiO2/ZrO2 nano-sol

AUTHOR(S): Choy, Jin Ho; Yoon, Joo Byoung; Park, Joo Hyoung
CORPORATE SOURCE: School of Chemistry and Molecular Engineering,
National Nanohybrid Materials Laboratory, Seoul

SOURCE: National University, Seoul, 151-742, S. Korea
Journal of Synchrotron Radiation (2001), 8(2), 782-784
CODEN: JSYRES; ISSN: 0909-0495

PUBLISHER: Munksgaard International Publishers Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The structural characterization of SiO2/ZrO2 nanosol particles, prepd. by mixing SiO2 sol and aq. soln. of ZrOCl2.8H2O, was carried out by in-situ XAS measurement at the Zr K-edge during condensation reaction. The detailed XANES features at the Zr K-edge of the mixed sol of SiO2/ZrO2 are compared with those of other refs. such as ZrO2, ZrOCl2.8H2O, BaZrO3, and ZrSiO4, and it becomes obvious that the Zr4+ ions are stabilized in an octahedral symmetry. Each Zr atom is coordinated with 6 O ones as the first nearest neighbor, where 2 O atoms are from the linkage of (Si-O-Zr) at short distance, and 4 ones are from water mols. at long distance. As the condensation reaction proceeds, it is found that the no. of O atoms due to the formation of (Si-O-Zr) bond at short distance and the second neighbor of silicon atoms increase simultaneously. From the above EXAFS and XANES results, the structural and gelating models could be proposed, which is based on the octahedrally coordinated but distorted Zr species attaching on the SiO2 sol surface.

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 20 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:162757 CAPLUS

DOCUMENT NUMBER: 135:83533

TITLE: Local structure analysis of Ti species stabilized in ion exchangeable layer solids by x-ray absorption spectroscopy

AUTHOR(S): Han, Yang Su; Yoon, Sun Mi; Kim, Dong Kuk; Lee, Eun Jung; Choy, Jin Ho; Park, Jung Chul

CORPORATE SOURCE: Department of Chemistry, Kyungpook National University, Taegu, 702-701, S. Korea

SOURCE: Journal of Synchrotron Radiation (2001), 8(2), 728-730
CODEN: JSYRES; ISSN: 0909-0495

PUBLISHER: Munksgaard International Publishers Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Nano-sized TiO2 are incorporated into the interlayer spaces of ion-exchangeable layered perovskites, H1-xCa2-xLaxNb3O10 (x = 0.0-0.75), by replacing the interlayer protons with pos. charged TiO2 nano-sol particles or basic Ti glycolate complex (titanatranne). Powder x-ray diffraction anal., UV-visible absorption spectroscopy, TGA, and N2 adsorption-desorption isotherm measurements show that quantum sized TiO2 particles are stabilized in between perovskite lattices to form micropores (SBET= 37-110 m2/g). X-ray absorption spectroscopy at the Ti K-edge was used for studying the local environment around Ti atoms constituting the interlayer pillars. According to the XANES spectra, the as-pillared Ti species have the same local environments with those of precursory species, which subsequently converted into TiO2 clusters with rutile and anatase-like local structures when TiO2 nano-sol particles and titanatranne are used as pillaring species, resp. The local environment of TiO2 remains almost const. irresp. of the layer charge d., while the TiO2 pillar content and the microporosity increase with the latter.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 21 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:730908 CAPLUS

DOCUMENT NUMBER: 134:12789

TITLE: Sol-hydrothermal synthesis of SnO2 nano-crystalline powder

AUTHOR(S): Lin, Bizhou

CORPORATE SOURCE: College of Chem. Eng., Huaqiao Univ., Quanzhou,
362011, Peop. Rep. China
SOURCE: Huaqiao Daxue Xuebao, Ziran Kexueban (2000), 21(3),
268-270
CODEN: HDZIEF; ISSN: 1000-5013
PUBLISHER: Huaqiao Daxue
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB Taking $\text{SnCl}_4 \cdot 5\text{H}_2\text{O}$ as raw material, uniform sized SnO_2 nano-cryst.
powder with av. grain size of 2.5-4.0 nm were prepd. by
sol-hydrothermal combined method. The nano-cryst. powder were
characterized by applying such means as X-ray diffraction, DTA and IR
absorption spectrum. The synthesized SnO_2 can be used for prepn. of
semiconductor sensor for toxic or combustible gases.

L10 ANSWER 22 OF 47 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:24539 CAPLUS
DOCUMENT NUMBER: 132:197830
TITLE: The formation of zirconium hydroxide nanoparticles
from aqueous nitrate solutions
AUTHOR(S): Southon, P. D.; Bartlett, J. R.; Finnie, K. S.;
Woolfrey, J. L.; Ben-Nissan, B.; Kannangara, G. S. K.
CORPORATE SOURCE: Department of Chemistry, University of Technology,
Sydney, 2007, Australia
SOURCE: Journal of the Australasian Ceramic Society (1999),
35(1/2), 7-12
CODEN: JAUSEL; ISSN: 1018-6689
PUBLISHER: Australasian Ceramic Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Concd. zirconia nano-sols have been prepd. by
dissolving Zr oxycarbonate in an acidic soln. of zirconyl nitrate.
Hydrolysis and condensation of polynuclear zirconyl cations promotes the
formation of nano-sized, polymeric, oxy-hydroxide particles. The
evolution of the nanoparticle structure during the formation of the sol
has been studied with a range of complementary characterization
techniques. Dynamic light scattering indicates that the vast majority of
particles are of size 3-6 nm. The Raman spectra of the zirconyl nitrate,
and the sol, have been assigned with the assistance of
vibrational-modeling software. The characteristic Raman peaks of the
polynuclear zirconyl cations at 450 and 575 cm^{-1} shift to 375 and 535
 cm^{-1} , resp., as the particles are formed, indicating the condensation of
terminal-hydroxy groups to form hydroxy bridges. ^{14}N NMR and Raman
spectroscopy show that all of the unassocd. nitrate groups present in the
precursor soln. become weakly assocd. with the surface of the particles,
but are not directly coordinated to the Zr atoms.
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 23 OF 47 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:220251 CAPLUS
DOCUMENT NUMBER: 130:346331
TITLE: Acidic and Hydrophobic Microporous Clays Pillared with
Mixed Metal Oxide Nano-Sols
AUTHOR(S): Han, Yang-Su; Yamanaka, Shoji; Choy, Jin-Ho
CORPORATE SOURCE: Department of Chemistry, Seoul National University,
Seoul, 151-742, S. Korea
SOURCE: Journal of Solid State Chemistry (1999), 144(1), 45-52
CODEN: JSSCBI; ISSN: 0022-4596
PUBLISHER: Academic Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB SiO_2 -metal oxide sol pillared clays were synthesized from montmorillonite
by exchanging interlamellar (Na^+) ions with SiO_2 sol particles modified
with polyhydroxy metal cations. Though the SiO_2 sol particle itself is
neg. charged in the pH range used in present expt., 1.5-2.7, the
ion-exchange-type intercalation of the SiO_2 sol into montmorillonite was
realized by modifying the surface charge of the sol particles from neg. to
pos. The pos. charged SiO_2 sol particles were prepd. by titrating metal
aq. solns. ($\text{M}^{2+} = \text{Fe}^{3+}, \text{Al}^{3+}, \text{Cr}^{3+}, \text{and Zr}^{4+}$) with NaOH in the presence of
 SiO_2 sol particles, which were easily intercalated in between the silicate
layers of clay. On pillaring of oxide sols and subsequent calcining at
400.degree., new porous materials were obtained with high BET surface
areas of 320-720 m^2/g , pore vols. of 0.24-0.50 mL/g , and basal spacings in
the range 40-60 \AA . Also, their thermal stability could be remarkably
improved up to 700.degree.. According to the adsorption measurements of N_2
and solvent vapors, the micropores in the samples of size 9-13 \AA .
dominate due to the multilayer stacking of interlayer sol particles in
between silicate layers. Temp.-programmed desorption (TPD) spectra of NH_3
revealed that the microporous samples are weakly acidic, but with

different strengths, depending on the doped metal species. (c) 1999
Academic Press.

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 24 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:750959 CAPLUS

DOCUMENT NUMBER: 129:321811

TITLE: Highly porous pillared clay with multistacked
SiO₂/TiO₂ nanosols

AUTHOR(S): Choy, Jin-Ho; Park, Joo-Hyoung; Yoon, Joo-Byoung

CORPORATE SOURCE: Department of Chemistry, Center for Molecular
Catalysis, College of Natural Sciences, Seoul National
University, Seoul, 151-742, S. Korea

SOURCE: Bulletin of the Korean Chemical Society (1998),
19(11), 1185-1188

CODEN: BKCSDE; ISSN: 0253-2964

PUBLISHER: Korean Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Layered nanocomposite, SiO₂/TiO₂ sol pillared clay, has been prep'd. by the
ion exchange reaction of Na⁺ ion in montmorillonite with pos. charged
mixed SiO₂/TiO₂ sol. The nanosized sol particles were synthesized by
mixing SiO₂ sol soln. with TiO₂ one, which is obtained by acidic
hydrolysis of TEOS and TiCl₄, resp. From powder XRD, the basal spacing
(d₀₀₁) of the sample calcined at 400 .degree.C was found to be ca. 60
.ANG., due to the multistacking of nanosized SiO₂ and TiO₂ sol particles,
which was confirmed by the pore size anal. from 129Xe NMR and micropore
anal. calcd. from nitrogen adsorption. The BET sp. surface area shows the
value of 684 m²g⁻¹ (Langmuir 1115 m²g⁻¹), which is the highest among
various pillared clays ever reported previously, and the total porosity is
found to be 0.51 mlg⁻¹, and the pores are mainly composed of micropore
with a size of ca. 11.8 .ANG.. This result agrees with the adsorption
capacity obtained from water adsorption. According to diffuse reflectance
UV-visible spectroscopy, it is found that the TiO₂ particles stabilized in
the interlayer space of montmorillonite are quantum-sized of ca. 20 .ANG..

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 25 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:589936 CAPLUS

DOCUMENT NUMBER: 129:279493

TITLE: Sol-Gel Preparation of AuCu and Au₄Cu Nanocluster
Alloys in Silica Thin Films

AUTHOR(S): Gwak, Ji-Hye; Kim, Sung-Jin; Lee, Minyung

CORPORATE SOURCE: Department of Chemistry, Ewha Womans University,
Seoul, 120-750, S. Korea

SOURCE: Journal of Physical Chemistry B (1998), 102(40),
7699-7704

CODEN: JPCBFK; ISSN: 1089-5647

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Using sol-gel processing and high-temp. annealing, metal alloy
nanoclusters of AuCu and Au₄Cu in SiO₂ thin films were synthesized. The
crystallog. data show that the lattice parameters of those nanocluster
alloys, both showing the fcc. structure, are very close to the bulk
values. The nanocrystals obtained by annealing at 900.degree. were nearly
spherical in shape, having the AuCu size of .apprx.23 nm in radius and the
Au₄Cu size of .apprx.35 nm. The peaks of the optical spectra of the
samples annealed at 700-900.degree. are located at 555 nm for AuCu and at
562 nm for Au₄Cu.

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 26 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:587130 CAPLUS

DOCUMENT NUMBER: 129:222968

TITLE: Optical switching and limiting: new applications for
silver halide technology?

AUTHOR(S): Sahyun, M. R. V.; Hill, Susan E.; Serpone, N.; Danesh,
Reza; Sharma, Devendra K.

CORPORATE SOURCE: Department of Chemistry, University Wisconsin, Eau
Claire, WI, USA

SOURCE: IS&T's Annual Conference (1997), 50th, 19-20

CODEN: ISACFN

PUBLISHER: Society for Imaging Science and Technology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The exptl. result already published imply a biphotonic mechanism of

spectral sensitization. Anal. of the optical limiting mechanism suggests that iodide doping, which is adventitious in the present case, is crit. to the obsd. photophys. behavior of the nanosols. The reaction sequence of rapid optical switching by Ag halide was presented.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 27 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:447109 CAPLUS
DOCUMENT NUMBER: 129:127565
TITLE: Multilayered SiO₂/TiO₂ Nanosol Particles in Two-Dimensional Aluminosilicate Catalyst-Support
AUTHOR(S): Choy, Jin-Ho; Park, Joo-Hyoung; Yoon, Joo-Byoung
CORPORATE SOURCE: Department of Chemistry Center for Molecular Catalysis College of Natural Sciences, Seoul National University, Seoul, 151-742, S. Korea
SOURCE: Journal of Physical Chemistry B (1998), 102(31), 5991-5995
CODEN: JPCBFK; ISSN: 1089-5647
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A new layered nanocomposite, which is one-to-one interstratified with a montmorillonite layer and a mixed SiO₂/TiO₂ sol particle one, has been prep'd. by ion exchange reaction of the Na⁺ ion in montmorillonite with the pos. charged SiO₂/TiO₂ sol particles. The ion exchange reaction was performed at three different temps. of 45, 60, and 75 .degree.C by mixing an aq. suspension of 1 wt % Na⁺ montmorillonite with SiO₂/TiO₂ sol soln. where the molar ratio of Si/Ti was selected as 20/2. According to the powder X-ray diffraction anal., the basal spacings of layered nanocomposites calcined at 400 .degree.C were found to increase from 35.4 .ANG., to 47.3 .ANG., and to 60.0 .ANG. as the ion exchange reaction temp. was raised from 40 .degree.C, to 60 .degree.C, and to 75 .degree.C. Their BET and Langmuir sp. surface areas and porosities, estd. from nitrogen adsorption-desorption isotherms, become larger with the increment of basal spacing, and the highest BET sp. surface area and the largest porosity are found to be 683 m²/g and 0.50 mL/g, resp. Despite the large increment of the basal spacing, the porous properties such as sp. surface areas, porosities, and pore sizes, those which are calcd. from t-plots and chem. shift of 129Xe NMR, resp., are detd. to be almost const. From the UV/vis spectra, the blue shift of the absorption edge was obsd., indicating that the TiO₂ sol particles in the interlayer are quantum sized. It is therefore proposed that the products are intercalation-type nanocomposites with the multistacked structure of the SiO₂/TiO₂ nanoparticles in the interlayer space of montmorillonite.

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 28 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:711691 CAPLUS
DOCUMENT NUMBER: 127:286203
TITLE: Sol-Gel Template Synthesis of Semiconductor Oxide Micro- and Nanostructures
AUTHOR(S): Lakshmi, Brinda B.; Patrissi, Charles J.; Martin, Charles R.
CORPORATE SOURCE: Department of Chemistry, Colorado State University, Fort Collins, CO, 80523, USA
SOURCE: Chemistry of Materials (1997), 9(11), 2544-2550
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB The template method for synthesizing nanostructures involves the synthesis of the desired material within the pores of a nanoporous membrane or other solid. The authors' work has involved using porous alumina and polymeric filter membranes as the templates. Fibrils or tubules of the desired material are formed within each pore of the template membrane. A no. of synthetic methods were used to synthesize these nanostructures. This paper reviews with many refs. sol-gel template synthesis: the use of sol-gel chem. to synthesize semiconductor oxide micro- and nanostructures within the pores of micro- and nanoporous membranes. For example, TiO₂ nanotubules and nanofibers of the anatase form were synthesized. The high surface area offered by these TiO₂ nanostructures was used for photodecompn. of salicylic acid in sunlight. Enzyme immobilization by stannous bridges inside the TiO₂ tubes also was studied. V2O5 fibrous electrode materials were prep'd. by this method and Li intercalation electrochem. is reported here. Other semiconductor oxides such as MnO₂, Co₃O₄, ZnO, WO₃, and SiO₂ also were prep'd.

L10 ANSWER 29 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:298944 CAPLUS
DOCUMENT NUMBER: 127:22124
TITLE: Preparation and optical properties of TiO₂
nanocrystalline particles dispersed in SiO₂
nano-composites
AUTHOR(S): Zhou, Q. F.; Zhang, Q. Q.; Zhang, J. X.; Zhang, L. Y.;
Yao, X.
CORPORATE SOURCE: Department of Physics, Zhongshan University, Canton,
510275, Peop. Rep. China
SOURCE: Materials Letters (1997), 31(1,2), 39-42
CODEN: MLETDJ; ISSN: 0167-577X
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Nano-composites of TiO₂ nanocryst. particles dispersed in SiO₂ have been
successfully prep'd. by the two-step hydrolysis of Si(OC₂H₅)₄ derived by
the sol-gel technique using TiO₂ ultrafine powder as a active component.
The influence of processing factors has been investigated; a two-step
rapid gelation method in sol-gel processing has been developed. The
optical absorption spectrum and the third-order nonlinear susceptibility
.chi.(3) of the nano-composites were measured, the highest .chi.(3) of the
sample was 4.1.times.10⁻¹¹ esu measured by the DFWM method.

L10 ANSWER 30 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:236959 CAPLUS
DOCUMENT NUMBER: 126:320003
TITLE: Nanocomposites Fe₂O₃/SiO₂ - Preparation by sol-gel
method and physical properties
AUTHOR(S): Niznansky, D.; Viart, N.; Rehspringer, J.L.
CORPORATE SOURCE: Institute of Inorganic Chemistry ASCR, Rez, 250 68,
Czech Rep.
SOURCE: Journal of Sol-Gel Science and Technology (1997),
8(1/2/3), 615-618
CODEN: JSGTEC; ISSN: 0928-0707
PUBLISHER: Kluwer
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Magnetic nanocomposites .gamma.-Fe₂O₃/silica were prep'd. by a one-step
sol-gel method. The sol was prep'd. by TEOS (tetra-Et orthosilicate) acid
hydrolysis in the presence of an iron salt sol. in methanol. After
gelation and drying, the transparent samples were characterized after
treatment at different temps. The particle size, obs'd. by HR-TEM, was in
the range of 2-10 nm and depended on Fe-concn. and heating temp. Magnetic
measurements showed either a ferromagnetic or a superparamagnetic behavior
and could be explained by the particle size. The dependence of the
magnetic behavior on the particle size was also studied by Mossbauer
spectroscopy. The samples in which the Fe₂O₃ particle size was approx. 10
nm showed magnetic splitting (sextet) at room temp., while smaller
particles (2-3 nm) showed this splitting only at the temp. of liq. helium.
The optomagnetic properties of the samples were also measured (Kerr
effect).

L10 ANSWER 31 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:134897 CAPLUS
DOCUMENT NUMBER: 126:160941
TITLE: Sol-Gel Template Synthesis of Semiconductor
Nanostructures
AUTHOR(S): Lakshmi, Brinda B.; Dorhout, Peter K.; Martin, Charles
R.
CORPORATE SOURCE: Department of Chemistry, Colorado State University,
Fort Collins, CO, 80523, USA
SOURCE: Chemistry of Materials (1997), 9(3), 857-862
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The template method for prep'g. nanostructures entails synthesis of the
desired material within the pores of a nanoporous membrane or other solid.
A nanofibril or tubule of the desired material is obtained within each
pore. Methods used previously to deposit materials within the pores of
such membranes include electrochem. and electroless deposition and in situ
polymn. This paper describes the first use of sol-gel chem. to prep.
semiconductor nanofibrils and tubules within the pores of an alumina
template membrane. TiO₂, WO₃, and ZnO nanostructures have been prep'd.
TiO₂ nanofibrils with diams. of 22 nm were found to be single crystals of
anatase with the c-axis oriented along the fibril axis. Bundles of these
fibrils were also found to be single cryst., suggesting that the
individual fibrils are arranged in a highly organized fashion within the
bundle. Finally, 200 nm diam. TiO₂ fibrils were used as photocatalysts
for the decompn. of salicylic acid.

L10 ANSWER 32 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:293907 CAPLUS

DOCUMENT NUMBER: 124:356021

TITLE: Optical limiting characteristics and mechanism of silver bromide nanosols

AUTHOR(S): Sahyun, M. R. V.; Hill, Susan E.; Serpone, N.; Danesh, Reza; Sharma, Devendra K.

CORPORATE SOURCE: Dry Imaging Technology Center, 3M 3M Center, St. Paul, MN, 55144, USA

SOURCE: Journal of Applied Physics (1996), 79(10), 8030-8037

CODEN: JAPIAU; ISSN: 0021-8979

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Optical limiting behavior has been obsd. in nanosols comprising .apprx.60 .ANG. particles of silver bromide. Switching times, .tau., are consistently in the ns regime, and values of $I_{1/2}$, the pulse laser exposure which elicits a 50% decrease in transmittance of the medium, can be less than 20 mJ/cm². Nonlinearity of response, $I_{1/2}$, and response time all increase with decreasing pAg of the nanosols. The materials can be cycled apparently indefinitely, provided they are subjected only to very short (sub-ns) laser pulses. Optical switching can be spectrally sensitized; comparable response parameters are obtained under these conditions. The nonlinear character of the response is, however, very different: a true response threshold, I_0 = .apprx. 12 mJ/cm², is obsd. Anal. of the optical limiting mechanism suggests that iodide doping, which is adventitious in the present case, is crit. to the obsd. photophys. behavior of the nanosols.

L10 ANSWER 33 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:139722 CAPLUS

DOCUMENT NUMBER: 124:209625

TITLE: Fabrication, characterization and application of Ni/SiO₂ nanocomposite materials prepared by sol-gel

AUTHOR(S): Monaci, R.; Musinu, A.; Piccaluga, G.; Pinna, G.

CORPORATE SOURCE: Dipartimento di Scienze Chimiche, Cagliari, I-09124, Italy

SOURCE: Materials Science Forum (1995), 195(Nanophase Materials), 1-6

CODEN: MSFOEP; ISSN: 0255-5476

PUBLISHER: Trans Tech

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Composites of nanoparticles of nickel dispersed in amorphous silica have been prepd. by classical sol-gel processing. Mild conditions have been used whenever possible to prevent the formation of large particles of nickel; times and temps. of the redn. step were varied in the treatment of samples with 7% nickel to verify their influence on the particle size. The samples with Ni particles of about 5 nm showed good catalytic activity in a std. hydrogenation reaction.

L10 ANSWER 34 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:17143 CAPLUS

DOCUMENT NUMBER: 124:131239

TITLE: Mechanisms of spectral sensitization: Role of sensitizing dye complexation

AUTHOR(S): Sahyun, M. R. V.; Sharma, D. K.; Serpone, N.

CORPORATE SOURCE: Information, Imaging and Electronics Sector Laboratories 3M, St. Paul, MN, USA

SOURCE: IS&T's Annual Conference: Imaging on the Information Superhighway, Final Program and Advance Printing of Papers, 48th, Washington, D.C., May 7-11, 1995 (1995), 219. IS&T--The Society for Imaging Science and Technology: Springfield, Va.

CODEN: 62BXAS

DOCUMENT TYPE: Conference

LANGUAGE: English

AB We have obsd. concurrent processes of photoexcited dye deactivation and Ag(0) cluster formation in real time under conditions of laser flash photolysis of a merocyanine dye adsorbed to an AgBr nanosol. To our knowledge this is the first time such a comprehensive view of the process of spectral sensitization has been obtained in an exptl. system.

L10 ANSWER 35 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:946448 CAPLUS

DOCUMENT NUMBER: 124:71337

TITLE: Mechanisms of spectral sensitization of silver

halides: role of sensitizing dye complexation

AUTHOR(S): Sahyun, M. R. V.; Sharma, D. K.; Serpone, N.

CORPORATE SOURCE: Dry Imaging Technol. Cent., St. Paul, MN, 55144, USA
SOURCE: Journal of Imaging Science and Technology (1995),
39(5), 377-85
CODEN: JIMTE6; ISSN: 1062-3701
PUBLISHER: IS&T--The Society for Imaging Science and Technology
DOCUMENT TYPE: Journal
LANGUAGE: English

AB We have obsd. concurrent processes of photoexcited dye deactivation and silver(0) cluster formation in real time under conditions of laser flash photolysis of a merocyanine dye adsorbed to an AgBr nanosol. To our knowledge this is the first time such a comprehensive view of the process of spectral sensitization has been obtained exptl. Spectral sensitization of AgBr is apparently biphotonic under our conditions; this result, along with obsd. kinetics of dye ground state re-population and of silver(0) cluster growth, is consistent with Mitchell's mechanism of spectral sensitization, but not with single-electron transfer or radical pair mechanisms. Control expts. revealed a modicum of photolytic reactivity for undyed nanosol with 2.35 eV photons and suggested operation of an Auger mechanism of photoelectron generation. In this case amplified stimulated emission was obsd. from photogenerated silver clusters, Agn0, (or a byproduct) at photon energies comparable to those that produce the Herschel effect in conventional photog. We speculatively est. nuclearity of the silver clusters produced under conditions of our expts. as $n = \text{ca. } 12$.

L10 ANSWER 36 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:222141 CAPLUS
DOCUMENT NUMBER: 122:15318
TITLE: Sol-gel processing of inorganic membranes
AUTHOR(S): Guizard, C.; Mouchet, C.; Vacassy, R.; Julbe, A.;
Larbot, A.
CORPORATE SOURCE: Laboratoire des Materiaux et des Procédés
Membranaires, Ecole Nationale Supérieure de Chimie,
Montpellier, 34053, Fr.
SOURCE: Journal of Sol-Gel Science and Technology (1994),
2(1/2/3), 483-7
CODEN: JSGTEC; ISSN: 0928-0707
PUBLISHER: Kluwer
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Basic principles involved in sol-gel processing of ceramic membranes are described. This process has been applied to ceramic ultrafiltration membranes and is now investigated to prep. ceramic nanofilters. Special emphasis is put on new developments concerning microporous zirconia membranes obtained by the polymeric route. A zirconium alkoxide precursor modified with an acetylacetone ligand has been used to control particle growth in the sols and pore size distribution in the membranes. N₂ adsorption and x-ray diffraction anal. have been performed on membrane materials showing the influence of process parameters (molar ratio γ , $\gamma = \text{acacH/Zr}$ and sintering temp. T) on membrane structural evolution.

L10 ANSWER 37 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:676990 CAPLUS
DOCUMENT NUMBER: 119:276990
TITLE: Creating better nanocomposites
AUTHOR(S): Lukehart, Charles M.; Carpenter, Joseph P.; Milne,
Stephen B.; Burnam, Kimberly J.
CORPORATE SOURCE: Dep. Chem., Vanderbilt Univ., Nashville, TN, 37235,
USA
SOURCE: CHEMTECH (1993), 23(8), 29-34
CODEN: CHTEDD; ISSN: 0009-2703
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review, with 13 refs., of the incorporation of metal complexes in silica xerogels to prep. highly dispersed nanoclusters of metals or semiconductors supported on SiO₂. Discussions include the Co-carbido system, Ag-thiolate complex system, organogermanism compd. system, and optical studies of the Ge nanocomposites.

L10 ANSWER 38 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:503346 CAPLUS
DOCUMENT NUMBER: 119:103346
TITLE: Dihydropyridine derivative-containing nanosol
as oral delayed-release dosage form
INVENTOR(S): Wunderlich, Jens Christian; Schick, Ursula; Werry,
Juergen; Freidenreich, Juergen
PATENT ASSIGNEE(S): Alfatec-Pharma GmbH, Germany
SOURCE: Ger. Offen., 8 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent

LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| DE 4140194 | A1 | 19930609 | DE 1991-4140194 | 19911205 |
| DE 4140194 | C2 | 19980219 | | |
| WO 9310770 | A1 | 19930610 | WO 1992-DE1014 | 19921204 |
| W: AU, CA, JP, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| AU 9230806 | A1 | 19930628 | AU 1992-30806 | 19921204 |
| EP 615446 | A1 | 19940921 | EP 1992-924551 | 19921204 |
| EP 615446 | B1 | 19951115 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, SE | | | | |
| AT 130190 | E | 19951215 | AT 1992-924551 | 19921204 |
| ES 2082524 | T3 | 19960316 | ES 1992-924551 | 19921204 |
| PRIORITY APPLN. INFO.: | | | DE 1991-4140194 | 19911205 |
| | | | WO 1992-DE1014 | 19921204 |

AB A dihydropyridine deriv. for treatment of cardiovascular disease is incorporated as the inner phase in a nanosol having an outer phase of gelatin or a gelatin fraction or deriv. bearing an elec. charge opposite to that of the drug so that the sol as a whole is elec. neutral. This prepn. shows improved bioavailability, resorption, and biocompatibility. Thus, nifedipine (30 g in 0.5 L iso-PrOH) was added to a soln. of 600 g of a 6% soln. of type B gelatin (pI 4.7) at 60.degree. and pH 5.5 to form a nanosol, which was spray-dried and pressed into tablets each contg. 20 mg nifedipine.

L10 ANSWER 39 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:503344 CAPLUS
DOCUMENT NUMBER: 119:103344
TITLE: Delayed-release form of a 3-indoleacetic acid derivative-containing drug preparation
INVENTOR(S): Wunderlich, Jens Christian; Schick, Ursula; Freidenreich, Juergen; Werry, Juergen
PATENT ASSIGNEE(S): Alfatec-Pharma GmbH, Germany
SOURCE: Ger. Offen., 7 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| DE 4140191 | A1 | 19930609 | DE 1991-4140191 | 19911205 |
| DE 4140191 | C2 | 19980219 | | |
| WO 9310769 | A1 | 19930610 | WO 1992-DE1013 | 19921204 |
| W: AU, CA, JP, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| AU 9230805 | A1 | 19930628 | AU 1992-30805 | 19921204 |
| PRIORITY APPLN. INFO.: | | | DE 1991-4140191 | 19911205 |
| | | | WO 1992-DE1013 | 19921204 |

AB An antirheumatic or anti-inflammatory 3-indoleacetic acid deriv. (e.g. indomethacin, acemethacin) is incorporated as the inner phase in a nanosol having an outer phase of gelatin, a gelatin deriv., or a gelatin fraction bearing an elec. charge opposite to that of the drug so that the sol as a whole is elec. neutral. The 3-indoleacetic acid deriv. is essentially completely resorbed from this prepn. in all portions of the digestive tract independently of the physiol. conditions in different portions of the tract or of the phys.-chem. properties of the compd. Thus, 100 g indomethacin was dissolved in a soln. of 600 g type B gelatin (pI 5.2) in 10 L distd. water at 55.degree. and pH 7-8. Addn. of HCl to pH 3.1 produced a nanosol, which was spray-dried and pressed into tablets each contg. 75 mg indomethacin.

L10 ANSWER 40 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:503342 CAPLUS
DOCUMENT NUMBER: 119:103342
TITLE: Pharmaceutical preparation containing a 2-arylpropionic acid derivative in nanosol form
INVENTOR(S): Wunderlich, Jens Christian; Schick, Ursula; Freidenreich, Juergen; Werry, Juergen; Lukas, Helmut; Schuster, Otto
PATENT ASSIGNEE(S): Alfatec-Pharma GmbH, Germany; PAZ
SOURCE: Arzneimittelentwicklungsgesellschaft mbH
Ger. Offen., 7 pp.
CODEN: GWXXBX

DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE | |
|--|------|----------|-----------------|-----------------|----------|
| DE 4140185 | A1 | 19930609 | DE 1991-4140185 | 19911205 | |
| DE 4140185 | C2 | 19960201 | | | |
| WO 9310761 | A1 | 19930610 | WO 1992-DE1012 | 19921204 | |
| W: AU, CA, JP, US | | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | | |
| AU 9230804 | A1 | 19930628 | AU 1992-30804 | 19921204 | |
| AU 669500 | B2 | 19960613 | | | |
| EP 615440 | A1 | 19940921 | EP 1992-924549 | 19921204 | |
| EP 615440 | B1 | 19950913 | | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, SE | | | | | |
| ES 2080527 | T3 | 19960201 | ES 1992-924549 | 19921204 | |
| CA 2125283 | C | 19980922 | CA 1992-2125283 | 19921204 | |
| US 5560924 | A | 19961001 | US 1994-244688 | 19940929 | |
| PRIORITY APPLN. INFO.: | | | | DE 1991-4140185 | 19911205 |
| | | | | WO 1992-DE1012 | 19921204 |

AB An antipyretic, analgesic, or anti-inflammatory 2-arylpropionic acid deriv. (e.g. ibuprofen, ketoprofen) is incorporated as the inner phase in a nanosol having an outer phase of gelatin, a gelatin deriv., or a collagen hydrolyzate bearing an elec. charge opposite to that of the drug so that the sol as a whole is elec. neutral. The drug is stabilized by the gelatin and is rapidly and completely resorbed in the stomach. Thus, 300 g racemic ibuprofen was dissolved in 800 g 10% NaOH soln. and added to 10 kg of a 6% soln. of gelatin type B (pI 4.9) at 40.degree. to provide a clear soln. This soln. was adjusted to pH 3.0 with HCl to form a nanosol, which was spray dried, mixed with excipients, and pressed into tablets each contg. 200 mg ibuprofen.

L10 ANSWER 41 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:480243 CAPLUS
DOCUMENT NUMBER: 119:80243
TITLE: Rapid-release flurbiprofen nanosol.
INVENTOR(S): Wunderlich, Jens Christian; Lukas, Helmut; Schuster, Otto; Schick, Ursula
PATENT ASSIGNEE(S): Alfatec-Pharma GmbH, Germany; PAZ
SOURCE: Arzneimittelentwicklungsgesellschaft mbH
Ger. Offen., 6 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE | |
|--|------|----------|-----------------|-----------------|----------|
| DE 4140184 | A1 | 19930609 | DE 1991-4140184 | 19911205 | |
| DE 4140184 | C2 | 19951221 | | | |
| WO 9310766 | A1 | 19930610 | WO 1992-DE1008 | 19921204 | |
| W: AU, CA, JP, US | | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | | |
| AU 9229409 | A1 | 19930628 | AU 1992-29409 | 19921204 | |
| EP 615443 | A1 | 19940921 | EP 1992-923694 | 19921204 | |
| EP 615443 | B1 | 19960814 | | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, SE | | | | | |
| AT 141160 | E | 19960815 | AT 1992-923694 | 19921204 | |
| ES 2090703 | T3 | 19961016 | ES 1992-923694 | 19921204 | |
| US 5556638 | A | 19960917 | US 1994-244614 | 19940916 | |
| PRIORITY APPLN. INFO.: | | | | DE 1991-4140184 | 19911205 |
| | | | | WO 1992-DE1008 | 19921204 |

AB A rapid-release anti-inflammatory formulation comprises a flurbiprofen inner phase (10-800 nm particle size) and a gelation or collagen hydrolyzate outer phase. The two phases have opposite isoionic elec. charges. A soln. of 600 g gelatin B in 10 L water was blended with a soln. of 200 g R-flurbiprofen in 700 g 10% NaOH, followed by pH adjustment to 3.2 (HCl) to give a nanosol, which was spray-dried and tableted.

L10 ANSWER 42 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:480242 CAPLUS
DOCUMENT NUMBER: 119:80242
TITLE: Rapid-release ibuprofen nanosol
INVENTOR(S): Wunderlich, Jens Christian; Lukas, Helmut; Schuster, Otto; Schick, Ursula
PATENT ASSIGNEE(S): Alfatec-Pharma GmbH, Germany; PAZ

SOURCE: Arzneimittelentwicklungsgesellschaft GmbH
Ger. Offen., 9 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| DE 4140179 | A1 | 19930609 | DE 1991-4140179 | 19911205 |
| DE 4140179 | C2 | 19951221 | | |
| WO 9310762 | A1 | 19930610 | WO 1992-DE1016 | 19921204 |
| W: AU, CA, JP, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| AU 9230808 | A1 | 19930628 | AU 1992-30808 | 19921204 |
| AU 670048 | B2 | 19960704 | | |
| EP 615441 | A1 | 19940921 | EP 1992-924553 | 19921204 |
| EP 615441 | B1 | 19960626 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, SE | | | | |
| AT 139690 | E | 19960715 | AT 1992-924553 | 19921204 |
| ES 2090712 | T3 | 19961016 | ES 1992-924553 | 19921204 |
| CA 2125281 | C | 19980922 | CA 1992-2125281 | 19921204 |
| US 6066332 | A | 20000523 | US 1995-244690 | 19951201 |

PRIORITY APPLN. INFO.: DE 1991-4140179 19911205
WO 1992-DE1016 19921204

AB A rapid-release anti-inflammatory formulation comprises an ibuprofen inner phase (10-800 nm particle size) and a gelatin or collagen hydrolyzate outer phase. The 2 phases have opposite isoionic elec. charges. A soln. of 600 g gelatin B in 10L water was blended with a soln. of 300g S-ibuprofen in 0.8 L 10% NaOH, followed by pH adjustment to 3 (HCl) to give a nanosol, which was spray-dried and tabletted.

L10 ANSWER 43 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:456219 CAPLUS

DOCUMENT NUMBER: 119:56219

TITLE: Slow-release flurbiprofen nanosol formulation

INVENTOR(S): Wunderlich, Jens Christian; Schuster, Otto; Lukas, Helmut; Schick, Ursula

PATENT ASSIGNEE(S): Alfatec-Pharma GmbH, Germany; Paz Arzneimittelentwicklungsgesellschaft MbH

SOURCE: PCT Int. Appl., 45 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| WO 9310771 | A1 | 19930610 | WO 1992-DE1015 | 19921204 |
| W: AU, CA, JP, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| DE 4140183 | A1 | 19930617 | DE 1991-4140183 | 19911205 |
| DE 4140183 | C2 | 19951221 | | |
| AU 9230807 | A1 | 19930628 | AU 1992-30807 | 19921204 |
| EP 615447 | A1 | 19940921 | EP 1992-924552 | 19921204 |
| EP 615447 | B1 | 19960306 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, SE | | | | |
| AT 134876 | E | 19960315 | AT 1992-924552 | 19921204 |
| ES 2085657 | T3 | 19960601 | ES 1992-924552 | 19921204 |

PRIORITY APPLN. INFO.: DE 1991-4140183 19911205
WO 1992-DE1015 19921204

AB Flurbiprofen (racemate, pseudoracemate or enantiomers) is formulated as a nanosol, for sustained release. A soln. of 600 g gelatin type B in 10 L water was treated at 50.degree., with a soln. of 200 g S-flurbiprofen in 350 g 10% NaOH, followed by pH adjustment to 3.2 (HCl) to give a nanosol, which was spray-dried.

L10 ANSWER 44 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:456216 CAPLUS

DOCUMENT NUMBER: 119:56216

TITLE: Slow-release ibuprofen nanosol formulations

INVENTOR(S): Wunderlich, Jens Christian; Schuster, Otto; Lukas, Helmut; Schick, Ursula

PATENT ASSIGNEE(S): Alfatec-Pharma GmbH, Germany; Paz Arzneimittelentwicklungsgesellschaft mbH

SOURCE: PCT Int. Appl., 49 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| WO 9310760 | A1 | 19930610 | WO 1992-DE1007 | 19921204 |
| W: AU, CA, JP, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| DE 4140172 | A1 | 19930617 | DE 1991-4140172 | 19911205 |
| DE 4140172 | C2 | 19951221 | | |
| AU 9230800 | A1 | 19930628 | AU 1992-30800 | 19921204 |
| EP 615439 | A1 | 19940921 | EP 1992-924545 | 19921204 |
| EP 615439 | B1 | 19951108 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, SE | | | | |
| AT 129891 | E | 19951115 | AT 1992-924545 | 19921204 |
| ES 2082523 | T3 | 19960316 | ES 1992-924545 | 19921204 |
| PRIORITY APPLN. INFO.: | | | | |
| | | | DE 1991-4140172 | 19911205 |
| | | | WO 1992-DE1007 | 19921204 |

AB Ibuprofen (racemate, pseudoracemate, enantiomers) is formulated as a nanosol, for sustained release. A soln. of 300 g gelatin type B in 5 L water was treated with a soln. of 200 g S-ibuprofen in 0.6 L 10% NaOH, followed by pH adjustment to 3 (HCl) to give a nanosol, which was spray-dried.

L10 ANSWER 45 OF 47 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:456196 CAPLUS

DOCUMENT NUMBER: 119:56196

TITLE: Rapid-release 3-indolacetic acid derivative nanosol drug

INVENTOR(S): Wunderlich, Jens Christian; Schick, Ursula; Werry, Juergen; Freidenreich, Juergen

PATENT ASSIGNEE(S): Alfatec-Pharma GmbH, Germany

SOURCE: Ger. Offen., 6 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 6

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|------------|
| DE 4140178 | A1 | 19930609 | DE 1991-4140178 | 19911205 |
| DE 4140178 | C2 | 19980219 | | |
| WO 9310767 | A1 | 19930610 | WO 1992-DE1009 | 19921204 |
| W: AU, CA, JP, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| WO 9310768 | A1 | 19930610 | WO 1992-DE1010 | 19921204 |
| W: AU, CA, JP, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| AU 9230801 | A1 | 19930628 | AU 1992-30801 | 19921204 |
| AU 671964 | B2 | 19960919 | | |
| AU 9230802 | A1 | 19930628 | AU 1992-30802 | 19921204 |
| AU 671965 | B2 | 19960919 | | |
| EP 615444 | A1 | 19940921 | EP 1992-924546 | 19921204 |
| EP 615444 | B1 | 19960306 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, SE | | | | |
| EP 615445 | A1 | 19940921 | EP 1992-924547 | 19921204 |
| EP 615445 | B1 | 19960515 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, SE | | | | |
| AT 134875 | E | 19960315 | AT 1992-924546 | 19921204 |
| ES 2085656 | T3 | 19960601 | ES 1992-924546 | 19921204 |
| AT 137962 | E | 19960615 | AT 1992-924547 | 19921204 |
| ES 2087565 | T3 | 19960716 | ES 1992-924547 | 19921204 |
| US 5614219 | A | 19970325 | US 1994-244691 | 19940913 |
| US 5932245 | A | 19990803 | US 1994-244615 | 19941025 |
| PRIORITY APPLN. INFO.: | | | | |
| | | | DE 1991-4140177 | A 19911205 |
| | | | DE 1991-4140178 | A 19911205 |
| | | | DE 1991-4140186 | A 19911205 |
| | | | DE 1991-4140195 | A 19911205 |
| | | | US 1992-876867 | A 19920430 |
| | | | WO 1992-DE1009 | A 19921204 |
| | | | WO 1992-DE1010 | A 19921204 |

AB A rapid-release anti-inflammatory nanosol formulation comprises an inner phase made of a title drug (indomethacin or acemethacin), having a 10-600 nm particle size, and a gelatin or collagen hydrolyzate outer phase. The 2 phase, have opposite isoionic charges. A suspension (pH 7.6) of 100 g indomethacin in a soln. of 600 g gelatin in 10L water was adjusted to pH 3.1, followed by spray-drying and tableting, to give a

rapid-release formulation.

L10 ANSWER 46 OF 47 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1993:456195 CAPLUS
DOCUMENT NUMBER: 119:56195
TITLE: Rapid-release glibenclamide nanosol
INVENTOR(S): Wunderlich, Jens Christian; Schick, Ursula;
Freidenreich, Juergen; Werry, Juergen
PATENT ASSIGNEE(S): Alfatec-Pharma GmbH, Germany
SOURCE: Ger. Offen., 6 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 6
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|------------|
| DE 4140177 | A1 | 19930609 | DE 1991-4140177 | 19911205 |
| DE 4140177 | C2 | 19951221 | | |
| WO 9310767 | A1 | 19930610 | WO 1992-DE1009 | 19921204 |
| W: AU, CA, JP, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| WO 9310768 | A1 | 19930610 | WO 1992-DE1010 | 19921204 |
| W: AU, CA, JP, US | | | | |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| AU 9230801 | A1 | 19930628 | AU 1992-30801 | 19921204 |
| AU 671964 | B2 | 19960919 | | |
| AU 9230802 | A1 | 19930628 | AU 1992-30802 | 19921204 |
| AU 671965 | B2 | 19960919 | | |
| EP 615444 | A1 | 19940921 | EP 1992-924546 | 19921204 |
| EP 615444 | B1 | 19960306 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, SE | | | | |
| EP 615445 | A1 | 19940921 | EP 1992-924547 | 19921204 |
| EP 615445 | B1 | 19960515 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, PT, SE | | | | |
| AT 134875 | E | 19960315 | AT 1992-924546 | 19921204 |
| ES 2085656 | T3 | 19960601 | ES 1992-924546 | 19921204 |
| AT 137962 | E | 19960615 | AT 1992-924547 | 19921204 |
| ES 2087565 | T3 | 19960716 | ES 1992-924547 | 19921204 |
| US 5614219 | A | 19970325 | US 1994-244691 | 19940913 |
| US 5932245 | A | 19990803 | US 1994-244615 | 19941025 |
| PRIORITY APPLN. INFO.: | | | | |
| | | | DE 1991-4140177 | A 19911205 |
| | | | DE 1991-4140178 | A 19911205 |
| | | | DE 1991-4140186 | A 19911205 |
| | | | DE 1991-4140195 | A 19911205 |
| | | | US 1992-876867 | A 19920430 |
| | | | WO 1992-DE1009 | A 19921204 |
| | | | WO 1992-DE1010 | A 19921204 |

AB A rapid-release antidiabetic nanosol formulation comprises a glibenclamide (I) inner phase (10-800 nm particle size) and a gelatin or collagen hydrolyzate outer phase. The two phases have opposite isoionic elec. charges. A soln. (pH 2.2; HCl) of 500 g gelatin B in 3L water was blended with a soln. of 13.89 g I in 0.2 L EtOH to give a nanosol. EtOH was evapd. in vacuum, followed by dry-spraying and tableting of the product.

L10 ANSWER 47 OF 47 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1992:654275 CAPLUS
DOCUMENT NUMBER: 117:254275
TITLE: Nanostructures in sol-gel derived materials: application to the elaboration of nanofiltration membranes
AUTHOR(S): Guizard, C.; Julbe, A.; Larbot, A.; Cot, L.
CORPORATE SOURCE: Lab. Physicochim. Mater., Ec. Norm., Montpellier, 34053, Fr.
SOURCE: Journal of Alloys and Compounds (1992), 188, 8-13
CODEN: JALCEU; ISSN: 0925-8388
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review with 17 refs. Development of membranes resistant to heating and chems. is expected for the sepn. of small mols. in biotechnologies, pharmaceuticals, chem. industries, water treatment, and also in gas sepn. When aiming at sepn. of small mols. (mol. wt. <1000) or multivalent ions, nanoscale pores or almost dense materials will be required. Pure inorg. materials as well as org./inorg. polymers are very good candidates for prepg. this new generation of membranes. The nanostructural organization of sol-gel-derived materials means that the sieve concept developed for microfiltration (MF) and ultrafiltration (UF) membranes can be surpassed and a concept of intelligent membrane can be recognized for nanofiltration

membranes. In fact, specific interactions are expected between the nanophased membranes and solubilized species or gas mols. passing through the membrane. Provided that these interactions can be managed, an increase in membrane performances is obtained, with the possibility of developing new application fields. Examples are given showing the important role played by the basic properties of ceramics and organically modified ceramics in the prodn. of tailored nanofiltration membranes.